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An ontology server for the agentcities.NET project

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An Ontology Server

… for the agentcities.NET project

- Review architectures, software toolkits, encoding formats
- Mechanism for populating the server
- Development of interactive and machine interfaces
- Deployment of service on agentcities.NET

Deployment grant: Sept 2002 – Feb 2003

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Terminology

Metadata is

- structured data about data
- a form of language (pidgin)

A metadata vocabulary or schema:

- declares a set of concepts or terms and their associated definitions and relationships
- the terms are often known as elements, attributes and qualifiers
- the definitions provide the semantics, ideally these are both human and machine readable
- in effect a manifestation of an ontology

A scheme:

- controlled vocabulary or enumerated type

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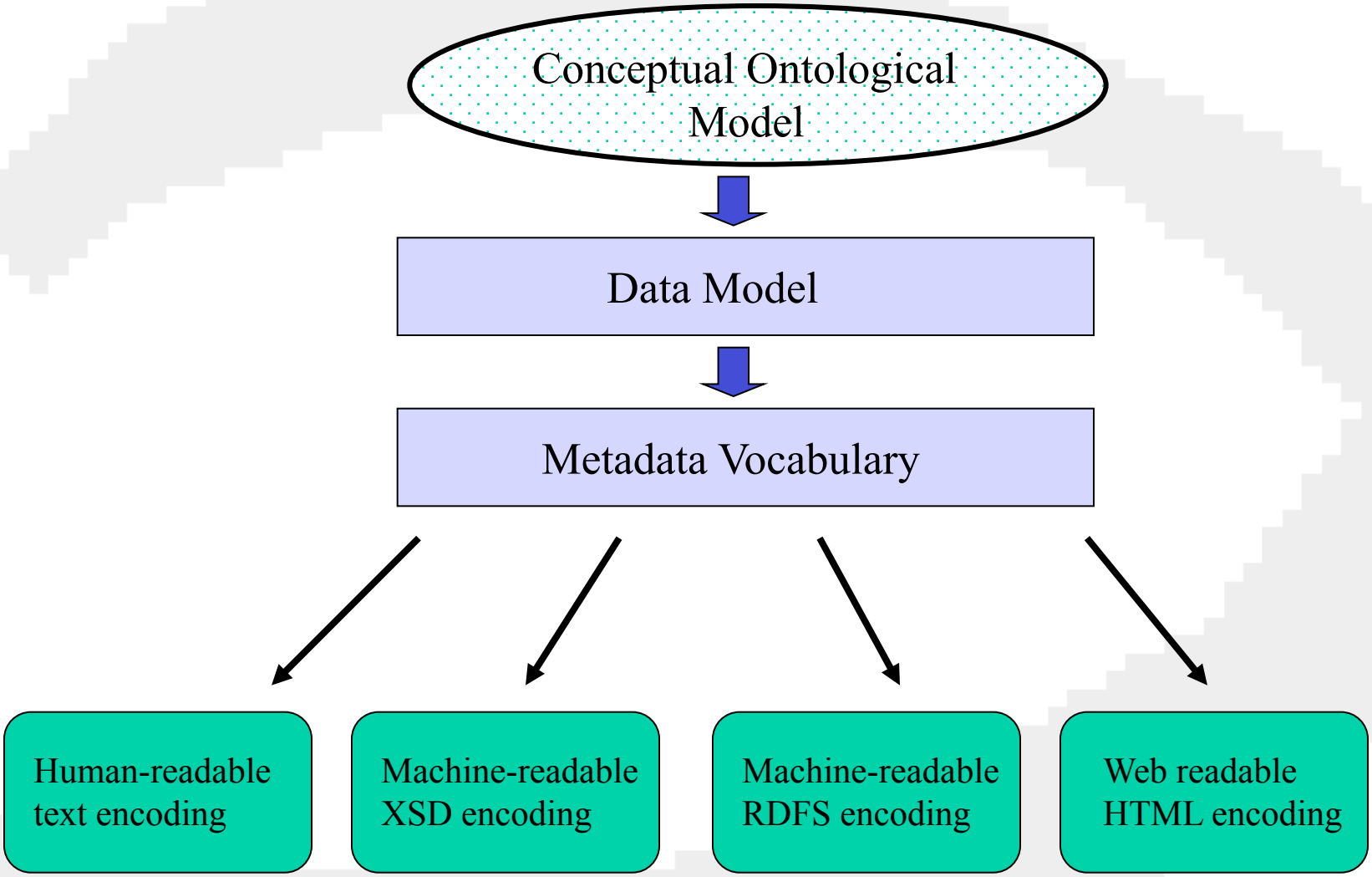
Ontologies & Schemas



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Motivation

- **Disclosure** of metadata vocabularies
- **Investigation** of individual terms as well as whole vocabularies for adaptations, local usages and relationships with other vocabularies
- **Interoperability** -convergence of ontologies within specific domains e.g. education, cultural heritage, publishing, rights management etc.
- **Reasoning and inference** -automated querying of metadata vocabularies by software agents to acquire the semantics associated with specific terms

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Contents

- Ontologies or metadata vocabularies
- Notion of *Application Profiles* as basis for encodings
- Specification language currently used is RDF Schemas

Architecture

Centralised -heavy maintenance burden

e.g. ISO/IEC 11179 based registries

(Environmental Protection Agency, Australian Health Information Knowledgebase), Dublin Core Metadata Initiative(DCMI), DESIRE, MetaForm

Distributed -content and maintenance is distributed, based on a harvesting model

e.g. SCHEMAS and CORES RDF registries

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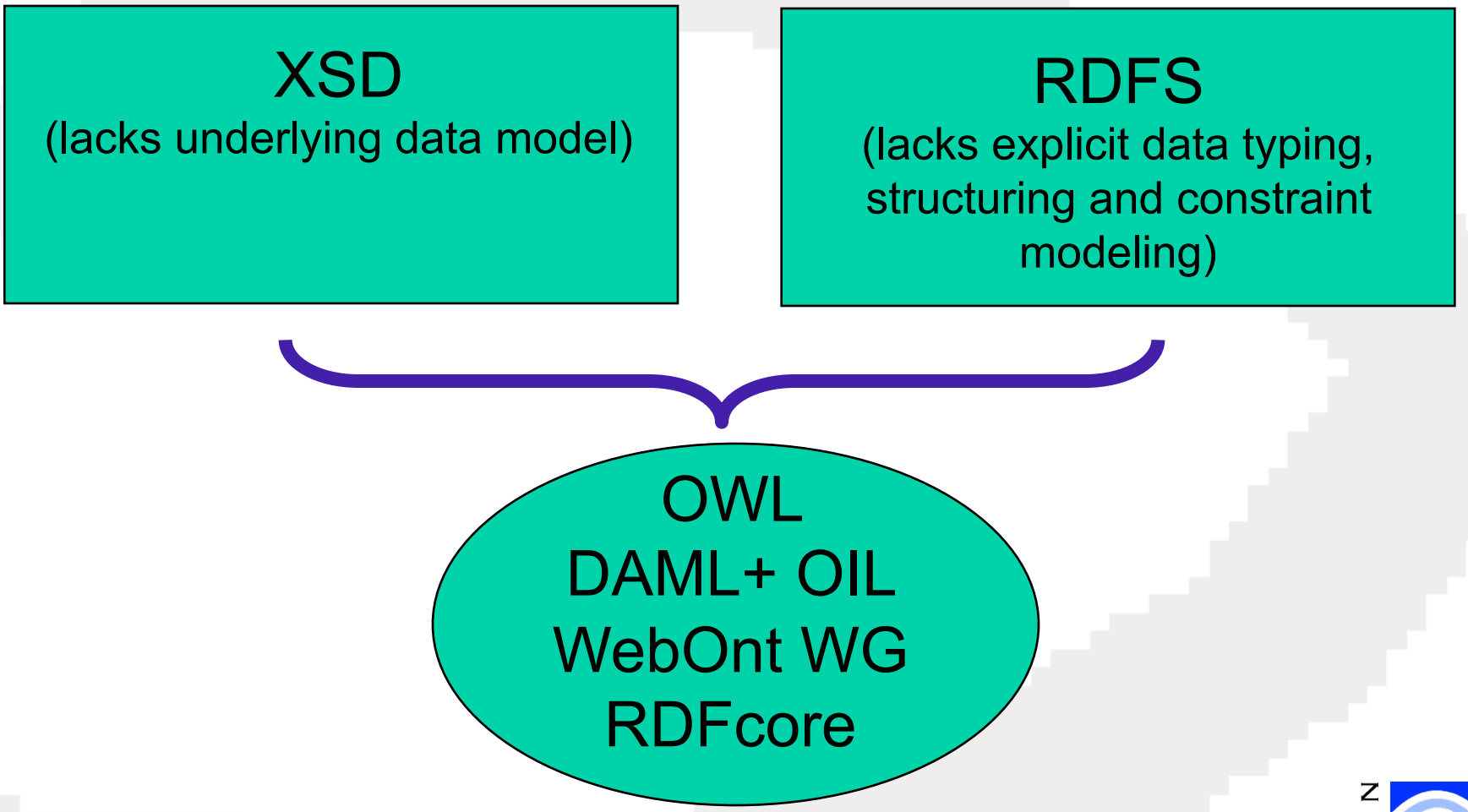
Encoding formats



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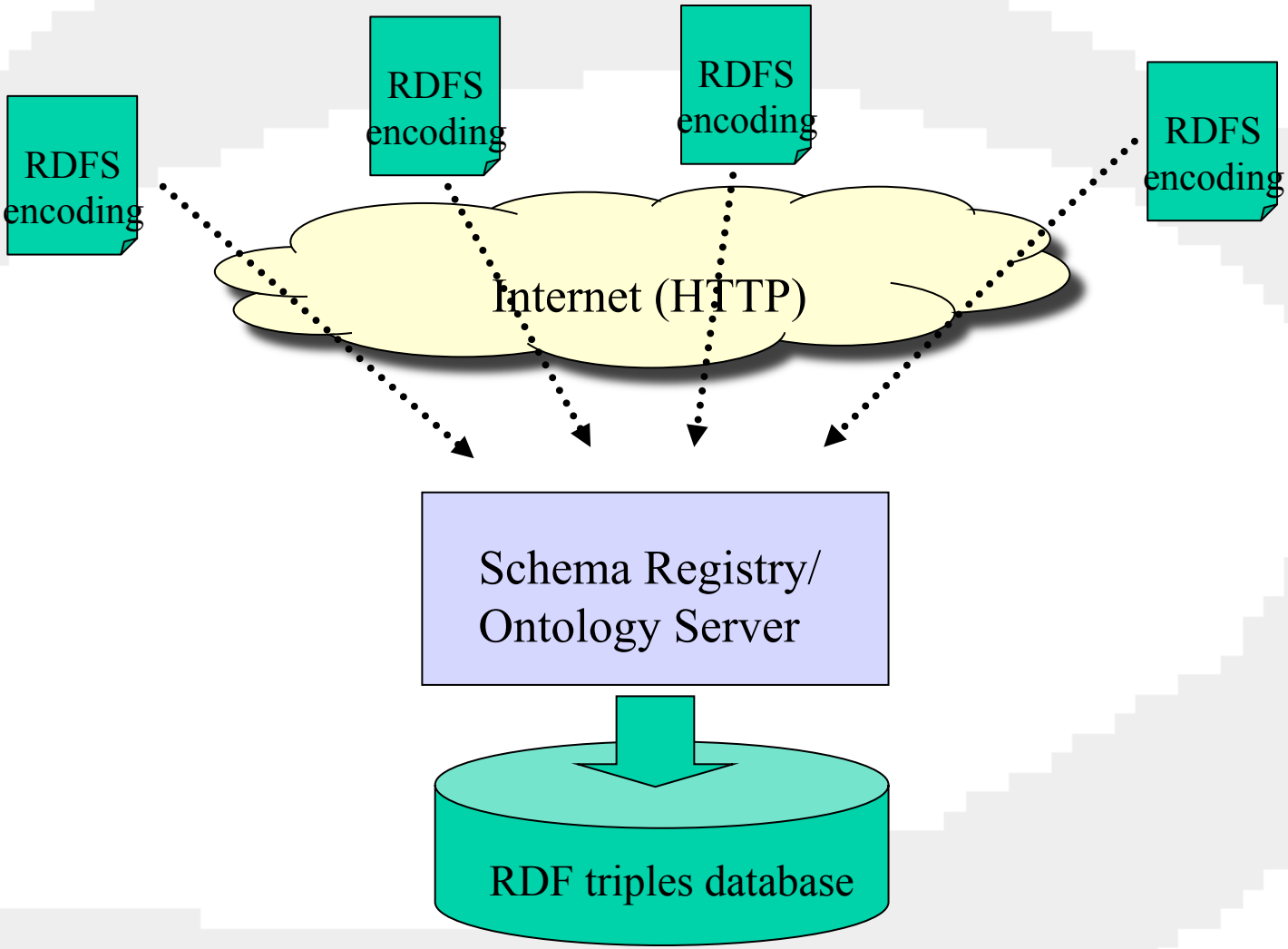
Ontology acquisition



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Interactive interface

- Support for schema developers and implementers
- Disclosure or publication environment for vocabularies
- Enable queries across a whole range of schemas
- Clarify relationships between vocabularies
- Encourage sharing of existing vocabularies to help avoid duplication of effort
- Encourage convergence and harmonisation within single domains
- Promotion of standards to improve potential for cross-domain interoperability

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Machine interface

Software interface to allow agents to query, search and navigate metadata vocabularies

- retrieve semantics
- perform inferencing and reasoning tasks

Essential infrastructure for the Semantic Web

Deployment of service

- Connection of the server to agentcities.NET network
- Provision of semantics in a machine-readable format to enable effective function of software agents in providing automated services

Selected references

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…a national focus of expertise in digital information management…

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